

EXECUTIVE SUMMARY

Nature as infrastructure

Recommendations to strengthen landscapes for climate adaptation and disaster risk reduction in Australia

NRM REGIONS AUSTRALIA

FIRST NATIONS ACKNOWLEDGEMENT

The authors respect the enduring spiritual and physical connection of First Nations people as Custodians of Country. We value the importance and diversity of the knowledge and understanding of First Nations people, which is based on a history of adapting to shifting climatic conditions, and balancing nature and society. We respect and recognise them as the first natural resource managers of Australia who have practised nature-based solutions for more than 60,000 years and recognise their Elders, both past and present. We commit to working together to care for Country.



AUSTRALIA IS AT A DEFINING MOMENT

Addressing the growing severity and frequency of climate hazards across Australian landscapes, coastlines, and urban centres demands a pivotal transformation in how we direct capital, formulate policy, and steward our natural environment.

Achieving long-term resilience requires moving away from reactive post-event recovery toward proactive risk mitigation and nature-based adaptation, while transitioning reliance from rigid 'grey' infrastructure to adaptable, cost-effective natural infrastructure.

By recognising and investing in nature as critical adaptation infrastructure, Australia can:

- reduce chronic climate risks whilst simultaneously mitigating further risks;
- catalyse adaptation and resilience responses and reduce adaptation and resilience costs;
- protect communities, infrastructure and local economies from increasing extreme acute climate events and reduce the costs of recovering from these events;
- support ecosystem recovery and meet international nature and climate commitments; and,
- unlock new economic opportunities.

THE COSTS ARE ESCALATING

Total annual economic loss from extreme events in Australia in 2021 was an estimated $38 billion[1]. The National Climate Risk Assessment[2] identified around one million homes will be in 'very high risk' climate hazard zones by 2050 and effectively uninsurable – which will have huge ramifications for social cohesion and equity.

In 2025 alone, disasters damaged 145,392 homes nationwide – almost as many as the 172,657 new homes completed that year[3]. Escalating disasters also negatively impact the natural environment that provides $892b to our GDP[4]. Yet domestically, Australian Government investment mostly flows into disaster response and recovery. Investment in climate adaptation and disaster resilience, primarily through the Disaster Ready Fund and Future Drought Fund, remains marginal compared to the cost of disasters[5].

Australia's current approach to climate and disaster risk is increasingly unsustainable. As climate hazards intensify, continuing to rely predominantly on post-event recovery will expose governments, communities, businesses and insurers to even higher escalating costs. A greater share of public and private capital must be directed towards reducing risk before disasters occur by investing in prevention, resilience and adaptation.

PREVENTION IS BETTER THAN CURE

Just as targeted investment in preventative health care – such as better nutrition, fluoride in water supplies and immunisation programs – can significantly reduce the demand for acute care, investing in natural infrastructure such as functioning floodplains, coastal vegetation, urban tree canopy and fire-resilient landscapes, reduces the impacts of climate hazards and their associated costs. The lesson from health is that governments that invest in prevention and risk reduction at scale, with robust measurement and long-term funding, realise compounding returns. The same logic applies to climate and disaster resilience. Critically, natural infrastructure generates multiple co-benefits, including contributing to preventative health care – it increases biodiversity, improves community wellbeing, supports water security and sequesters carbon, while also reducing future disaster costs.

London's urban forest prevented an estimated 153 heat-related deaths between 2015–2022[6] and Australian adults living in neighbourhoods with at least 30 per cent tree canopy have better mental and physical health than those in low-canopy areas[7].

Investment in natural infrastructure also represents co-investment in programs that support many other government objectives, including enhanced community health and safety, and greater resilience of local economies, green jobs, cultural values, and infrastructure. These actions can reduce climate risks, advance climate resilience and adaptation, support nature recovery and net zero goals, and strengthen Australia's economy.

THE EVIDENCE IS CLEAR

Natural infrastructure approaches are cost-effective, deliver multiple benefits for communities, economies and biodiversity, and are deployable now.

A global review of more than 20,000 economic evaluations of natural infrastructure over a 20-year period found 95% consistently proved cost-effective in mitigating hazards and 91% of relevant studies found that natural infrastructure is at least as effective as engineered solutions[8]. The advent of hybrid natural and engineered infrastructure solutions provides even more scope.

What remains missing is the enabling policy, governance and investment architecture to unlock the potential of natural infrastructure at scale. This discussion paper is a call to action.

It recommends specific federal and state government actions that can accelerate natural and hybrid infrastructure approaches to climate adaptation and disaster resilience across Australia. These actions have been produced by a cross-sector collaboration spanning natural resource management, research, investment, insurance, climate policy and First Nations land management – also reflecting the breadth of engagement required to drive change at the scale needed.

'NATURAL INFRASTRUCTURE'

refers to actions that protect, sustainably manage and restore natural or modified ecosystems, to address societal challenges effectively and adaptively.

THE RECOMMENDATIONS SHOULD BE CONSIDERED AS A SEQUENCE OF CRITICAL STEPS

Climate, nature and social risks and opportunities are interdependent, and none of them will shift at pace without a comprehensive picture across and within each. Sequencing matters as much as ambition. Government leadership sets the sequence; private capital and delivery follow with confidence once the measurement and policy signals are clear and consistent.

Key recommendations are grouped into the following interconnected areas:

- **Healthy Country Healthy People:** Increase investment in First Nations co-stewardship and leadership of natural resource management programs, and give a voice to Indigenous knowledge and leadership.
- **Value Natural Infrastructure:** Incorporate natural values into government financial decision making.
- **Catalyse Private Sector Action:** Structure government policy to catalyse private sector frameworks for valuing and investing in natural infrastructure.
- **Increase Supply:** Invest in Australia's established network of local, regional and cross-regional aggregators – including Indigenous land management organisations, regional NRM organisations, and local governments – to accelerate the delivery of natural infrastructure.
- **Build Capacity:** Invest in closing the knowledge and awareness gaps and strengthening the Australian evidence base to support scaling of natural infrastructure for disaster risk reduction.

Action to implement natural infrastructure approaches to adaptation and risk reduction is gaining momentum globally. Australian state and federal governments have a significant opportunity to strengthen Australia's landscapes, cities and communities through the adoption of natural infrastructure, so that they are resilient to the current and future impacts of a changing climate.



Highest priority recommendations*	Suggested lead agency/ies
Publish national natural infrastructure policy guidance – to drive and underpin decisions across public and private sectors.	Australian Treasury
Cost Benefit Analysis (CBA) methodologies to include multi-capitals approach to financial decision making – including embedding detailed guidance on the costs and benefits of natural infrastructure (including consequences of the loss or avoided loss), and ecosystem services.	Australian and State/ Territory Government Treasury Departments
Embed the role of natural infrastructure into the Measuring What Matters framework and climate economic forecasting.	Australian Treasury
Reform the delivery of the Disaster Ready Fund and Disaster Recovery Funding Arrangements to support landscape-scale disaster risk reduction and climate adaptation – that deploys both traditional infrastructure and natural adaptation infrastructure as complementary classes — including hybrid solutions.	National Emergency Management Agency
Provide secure, enduring multi-year funding to key aggregating organisations Australia-wide – for essential services to coordinate delivery of place-based, integrated, natural infrastructure projects.	Australian and State/ Territory Governments
Invest in natural infrastructure peer-to-peer knowledge-exchange networks and technical advisory hubs.	National Emergency Management Agency, Australian and State/ Territory Governments

*see full report for all recommendations

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1 Deloitte. (2021) Special Report: *Update to the Economic Costs of Natural Disasters in Australia.*
2 Australian Government. (2025) *National Climate Risk Assessment.*
3 Insurance Council of Australia (2026) *Catastrophe Resilience Report 2025-26.*
4 Australian Conservation Foundation (2022) *The nature-based economy: How Australia's prosperity depends on nature.* '$892b of our GDP has a moderate to high direct dependence on ecosystem services'.
5 Australian Government (2026) *Australian Government Investment Funds.*
6 Taylor et al. (2024) Environ. Res. Lett. 19 054004.
7 Astell-Burt T, Feng X. (2019) *Association of Urban Green Space With Mental Health and General Health Among Adults in Australia.* JAMA Netw Open. 2019;2(7):e198209. doi:10.1001/jamanetworkopen.2019.8209
8 Vicarelli, M. et al. (2024) *On the cost-effectiveness of Nature-based Solutions for reducing disaster risk.* Sci. Total Environ. 947, 174524.

IMAGES

Cover
Terrain NRM – Johnstone River Catchment, QLD.

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Cradle Coast NRM – Tiagarra Tasmanian Aboriginal Cultural Centre. Image: Stu Gibson, TAS

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Perth NRM – Building coastal resilience, WA.

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